VIII. "Agricultural, Botanical, and Chemical Results of Experiments on the Mixed Herbage of Permanent Meadow, conducted for more than Twenty Years in Succession on the same Land. Part II. The Botanical Results." By J. B. LAWES, LL.D., F.R.S., F.C.S., J. H. GILBERT, Ph.D., F.R.S., F.C.S., F.L.S., and M. T. MASTERS, M.D., F.R.S., F.L.S. Received June 17, 1880.

(Abstract.)

PART II.—*The Botanical Results.*

In Part I ("Phil. Trans.," Part I, 1880), under the title of the "*Agricultural Results*," a general description of the experiments, with full particulars of the conditions of manuring of each of the more than twenty plots, was given. The effects of each condition of manuring on the character of growth of the herbage, as illustrated in the quantities of produce yielded, and in the amounts of nitrogen and of mineral matter taken up, on each plot, were also fully considered. But, so varied were the components of the mixed herbage, both as to the species grown, and as to the character of development of the plants, that, to render the "*Agricultural results*" sufficiently intelligible, and to prevent misconception, if the element of quantity only were taken into account,

it was found necessary to describe, in general terms, the differences in the botanical composition, in the character of development, and in some points in the chemical composition of the produce also. The object of the present section is to describe and discuss, more in detail, what may be called the *botany* of the plots; that is, to show both the normal botanical composition of the herbage, and the changes induced, by the application of the different manuring agents, and by variations in the climatal conditions of the different seasons; and, as far as may be, to ascertain what are the special characters of growth, above-ground or under-ground, normal or induced, by virtue of which the various species have dominated, or have been dominated over, in the struggle which has ensued.

The method of taking the samples, and of conducting the botanical analyses and observations, is described. The characters of the seasons in which complete botanical separations were made, as well as those of some of the seasons leading up to the years of separation themselves, are discussed. The flora of the collective plots is described; and the organization by means of which the constituent plants may maintain themselves, or succumb in the competition, is considered. The characteristics of the individual dominant plants are pointed out; and, finally, the botany of each of the twenty-two plots is fully detailed, and the changes induced, by season or manuring, are discussed.

IX. "Preliminary Note on some Points in the Pathology of Anthrax, with especial reference to the Modification of the properties of the *Bacillus anthracis* by Cultivation, and to the Protective Influence of Inoculation with a Modified Virus." By W. S. GREENFIELD, M.D., F.R.C.P., Professor Superintendent of the Brown Institution. Communicated by Professor BURDON-SANDERSON, F.R.S. Received June 17, 1880.

In the course of some experimental investigations into the pathology of anthrax at the Brown Institution, made during the past twelve months, two series of phenomena have been the subject of study, and in each some results which I believe to be novel have been attained. These results have not only a considerable practical importance, if verified by other observers, but their interest in relation to the pathology of anthrax and other diseases appears to me sufficient to warrant their communication to the Royal Society in the form of a preliminary note, leaving the full detail of the experiments for a future occasion.

The practical purpose of these investigations was to ascertain (1) by what means the virus of splenic fever may be so modified as to be capable of inoculation without fatal result, and (2) whether a modified